

UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BERKELEY, CALIFORNIA

Honey Marketing in California

EDWIN C. VOORHIES, FRANK E. TODD,
and J. K. GALBRAITH

Results of a cooperative investigation conducted by the Pacific Coast Bee Culture Field Laboratory of the United States Department of Agriculture Bureau of Entomology, and the California Agricultural Experiment Station.

BULLETIN 554
JULY, 1933

CONTRIBUTION FROM THE
GIANNINI FOUNDATION OF AGRICULTURAL ECONOMICS

UNIVERSITY OF CALIFORNIA PRINTING OFFICE
BERKELEY, CALIFORNIA

CONTENTS

	PAGE
Foreword	3
Summary	3
The general situation	4
Objectives of the study	5
Marketing channels for honey in California	6
Sale by producers	6
Distributing agencies between the producer and the retailer	8
Honey as a retail commodity	10
Stores sampled	10
Trade brands	11
Sizes of glass honey containers	12
Shape of glass containers	13
Metal containers	14
Comb honey	15
Sirup as a competitive commodity	16
Relative importance of honey as a retail commodity	16
Economic effects of present methods of marketing honey	17
Quality	17
Price	18
Price cutting	21
Responsibility for quality	22
The problem of trade promotion	23
Measures for improving the marketing of honey	23
Adoption of grades	24
Standardization of containers	24
Improved marketing practices	25
Producer organization	26
Characteristics of consumer demand for honey	27
Type of honey preferred	27
Seasonal variation in demand	28
Relation of demand to class of consumer	28
Foods competing with honey	28
Outlets for honey in the manufacture of other food products	29
Baking industry as a honey outlet	29
Candy manufacture as an outlet	30
Honey for other purposes	30
Acknowledgments	31

HONEY MARKETING IN CALIFORNIA^{1, 2}

EDWIN C. VOORHIES,³ FRANK E. TODD,⁴ AND J. K. GALBRAITH⁵

FOREWORD

This survey was undertaken in 1931-32 as part of a general industry analysis of California bee culture which had been requested previously by several groups of beekeepers in the state. As the general investigation progressed certain aspects of the marketing of California honey appeared to be so important that it was decided to direct further attention to this phase and to bring the results independently to the attention of California producers and others who might be interested.

SUMMARY

The gravest problem of the California beekeeper is the low price which his product commands, particularly in comparison with the cost of doing business. Many forces influence the price of any commodity and a large number of these price-determining forces are beyond the control of those who are producing and handling the product in question. On the other hand, there are certain price-influencing factors which can be controlled by the producer acting with other producers and with those engaged in the handling of this product. One of these controllable factors is the marketing system. The present bulletin deals with the marketing system used for California honey in its relation to the prices obtained by the producers.

California honey producers are being substantially penalized for using existing methods for marketing their product. It is sufficient to say in this summary that it was brought forcibly to the attention of the authors at every stage in their investigations. Evidence in the case of other farm commodities is overwhelmingly in favor of rational, well-ordered, well-organized methods of marketing. Such conditions do not prevail in the marketing of California honey. Producers should not be

¹ Received for publication March 7, 1933.

² Paper No. 38, The Giannini Foundation of Agricultural Economics. The bulletin was prepared by the Pacific Coast Bee Culture Field Laboratory of the United States Department of Agriculture Bureau of Entomology, and the Giannini Foundation of the University of California in cooperation.

³ Associate Professor of Agricultural Economics, Agricultural Economist in the Experiment Station, and Agricultural Economist on the Giannini Foundation.

⁴ Associate Apiculturist, Pacific Coast Bee Culture Field Laboratory of the United States Department of Agriculture Bureau of Entomology.

⁵ Research Assistant on the Giannini Foundation.

misled by the fact that the price decline of honey is no worse than that which has occurred for other farm commodities. Production data show that the beekeeper has escaped the specter of state or national overproduction which faces many California producers. On the other hand, honey prices have suffered in a manner quite comparable to those of many far less favorably situated commodities. The description and analysis of the marketing of honey given herein substantiate the belief that present methods have intensified the low price situation. Unless these methods are improved, future price recovery may be seriously endangered.

Two groups of measures for improving the marketing system for honey have been set forth. The first group largely depends upon the establishment of standards for the product and the improvement of the mode of sale. The second group is contingent upon some form of industry organization for the marketing of California honey.

As a guide to the better adjustment of production to consumer demand, a brief analysis of consumer preferences and requirements in the California metropolitan markets has been made. Color of honey, with emphasis on a light, clear product, has been found to occupy a prominent position as the consumer's criterion of quality. The widespread discrimination against granulated honey, the secondary importance of floral varieties, and the keen competition of sirups and fruit spreads were other features of this phase of the study.

Throughout the study the major emphasis was placed on the marketing of honey for table or domestic use. In keeping, however, with the interest displayed by beekeepers, attention has been given to outlets for honey in the manufacture of other food products, particularly with the objective of determining their future possibilities. While quantitative data are lacking, it is apparent that fancy baking, biscuit, and candy manufacture are by far the most important of these outlets at the present time and are likely to remain so. In bakery use honey faces competition from aggressively merchandized sugar sirups, and of course less directly from sugar itself. The use of honey in ice-cream manufacture, pharmaceutical preparations, and chocolate sirups cannot be regarded as particularly promising at the present time.

THE GENERAL SITUATION

As California produces honey considerably in excess of its consumption, producers within the state are interested in markets in other parts of the United States and abroad. The greatest outlet for their honey, however, is in California itself. For example, it has been estimated that

in 1931 the total production of extracted honey in California was between 10 and 15 million pounds, and another 2½ million pounds entered the state from Hawaii and the intermountain region.⁶ Shipments to the east coast and exports to foreign countries accounted for approximately 5 million pounds, and since relatively little California honey goes direct to other parts of the United States, by far the greatest portion of all honey produced in the state or entering the state must find a local market.

The California market for honey is of special significance in other respects. The population of the state, and hence the volume of consumer demand, has increased rapidly in recent years and a further increase is not unexpected. This consuming population is near the source of production and can be economically supplied; moreover, it has a relatively high per-capita purchasing power. It is probable, also, that it has developed a special taste for types or flavors of honey peculiar to the California and the intermountain districts.

OBJECTIVES OF THE STUDY

The objectives of this study of the marketing of honey in California were as follows: (1) To describe the agencies and practices involved in the movement of honey from producers to consumers. This was particularly essential in the case of honey because it is not a widely known article of commerce. (2) To determine the dominant characteristics of consumer demand, for the satisfaction of which all production and marketing is carried on. (3) To determine the strength and weakness of the present system of marketing honey. (4) To suggest improved marketing methods where the desirability of such was indicated. (5) To examine briefly the outlets for honey for purposes other than direct consumption, and to determine the significance and potentialities of such outlets.

The sources of information used in carrying out this study were very largely of direct or primary character. The various agencies engaged in the marketing of honey were carefully sampled and the experience of individuals familiar with its various aspects was drawn upon. Interviews were obtained wherever possible and in certain instances questionnaires were circulated. The retail stores were made a focal point for study of consumer demand and of the characteristics of honey as it appears in its final form awaiting sale to the consumer.

⁶ Estimates of authors. Data on shipments are from: Federal-State Market News Service. Honey and beeswax receipt and shipment summary—1931, Los Angeles, San Francisco, and Seattle. U. S. Dept. Agr. Bur. Agr. Econ., and California State Dept. Agr. Div. Markets. 16 p. April 5, 1932. (Mimeo.)

MARKETING CHANNELS FOR HONEY IN CALIFORNIA

Sale by Producers.—Unlike most other farm commodities, honey does not pass from the producer into well-defined marketing channels. Any six beekeepers selected at random may be selling their honey in as many different ways. A common practice is for the larger beekeepers, who have facilities for bottling and blending, to purchase honey from the smaller producers in the surrounding district. Many producers sell to firms that make a specialty of blending and bottling honey, and confec-

TABLE 1

AMOUNTS AND PERCENTAGES OF HONEY DISPOSED OF BY VARIOUS
METHODS BY PRODUCER-BOTTLERS IN CALIFORNIA, 1931

Method of disposal	Amount, in pounds	Per cent of total
Direct to consumer:		
Peddling from door to door.....	11,380	1.5
Roadside stands.....	97,707	13.1
Total.....	109,087	14.6
Sold to brokers or wholesalers.....	222,200	29.7
Sold to retail stores.....	360,755	48.2
Other channels.....	46,350	6.2
Indefinite	9,520	1.3
Total honey handled.....	747,912	100.0

Source of data: Information obtained from producer-bottlers by the authors.

tioneries, bakeries, and supply houses form an outlet for direct sale of some importance. Some look upon roadside stands and door-to-door or local selling as their most satisfactory outlets. Producers who have the facilities for packaging their honey may sell direct to retailers; others may even dispose of their product in bulk to the retail store to be bottled there. A considerable quantity is sold to individuals variously described as brokers, dealers, wholesalers, or jobbers, who, in turn, supply larger bottling firms, supply houses, or export the honey.

A list of producers bottling honey for sale in 1931 was made available by the California State Bureau of Commerce, and these producers were circularized to find out the extent to which different methods of disposal were in use in 1931. Of the 143 listed as bottling their own or their neighbors' honey, satisfactory replies were received from 40. The amounts and percentages of honey disposed of by these producer-bottlers are shown in table 1.

Although these data cannot be taken as an accurate representation of the percentages marketed through each of the channels by the industry as a whole, they do bring out some interesting relations. The proportion (14.6 per cent) of the honey passing direct to the consumer is perhaps not so large as has sometimes been suggested. On the other hand, it is indicated that a considerable part of the crop passes direct to the retail store, and the opinion was frequently expressed in the

TABLE 2
CONTAINER SIZES USED BY PRODUCERS BOTTLING AND PACKING
HONEY IN CALIFORNIA, 1931

Size of container	Number of bottlers using	Size of container	Number of bottlers using
1 oz.....	2	2 lbs.....	8
4 oz.....	1	2 lbs. 8 oz.....	6
5 oz.....	3	2 lbs. 10 oz.....	3
6 oz.....	3	2 lbs. 11 oz.....	2
8 oz.....	1	2 lbs. 12 oz.....	2
11 oz.....	1	2 lbs. 15 oz.....	1
12 oz.....	8	3 lbs.....	17
13 oz.....	1	5 lbs.....	22
14 oz.....	1	6 lbs.....	3
15 oz.....	2	10 lbs.....	19
16 oz.....	3	12 lbs.....	3
18 oz.....	1	23 lbs. 8 oz.....	1
20 oz.....	2	60 lbs.....	23
21 oz.....	7	Fancy jars.....	1
23 oz.....	2		
24 oz.....	8		
30 oz.....	1		

Source of data: Calculations by authors based upon reports sent by producers bottling honey.

questionnaires that an increasingly large proportion of the honey crop was finding an outlet in this way.

The terms "broker" and "wholesaler," as used here, apply to any person or agency buying honey in considerable quantities for distribution to bottlers, or to wholesale or retail grocers, for exportation, or for sale to bakeries, restaurants, etc. Were the present sample inclusive of those who do not bottle their own honey, it is logical to expect that the proportion sold in this way would be somewhat greater than the 29.7 per cent given in table 1.

Producer-bottlers were asked about the sizes of containers employed in putting up honey for sale. A total of 31 different sizes of jars and containers varying from 1 ounce to 60 pounds were indicated as shown in table 2. In a later section (pages 10 to 17) the large number of con-

tainer sizes is discussed as an important factor working against the retail sale of honey on a satisfactory basis. It is more than likely that a considerable share of this lack of standardization may be traced back to the large number of small producer units carrying on individual marketing activities, particularly through retail stores, each with a different idea for the best sizes and types of containers. Moreover, it is likely that the lack of standardization of containers is only an indication of the less obvious, but more serious, lack of standardization of quality.

It is within the power of honey producers by joint action to correct this lack of standardization so far as they are themselves responsible. Moreover, unless such a movement is initiated by the producers, it is doubtful if much progress can be made in meeting similar difficulties in the later channels of distribution.

Distributing Agencies Between the Producer and the Retailer.—Where honey is sold in bulk by the producer, a large portion is purchased by individuals or firms (bottling firms) engaged in blending, bottling, and branding the honey for the wholesale grocery, chain store, or retail trade, or in handling large lots for bakeries, bakery supply firms, and restaurants. These bottling firms vary in size from the producer who, with somewhat better facilities than his neighbors, buys their honey and puts it up along with his own, to larger organizations which engage almost exclusively in buying and bottling honey for sale. Of the former, there are a large number within the state who are perhaps more properly considered as producers than as intermediaries in the marketing process.

The terms "broker," "dealer," "wholesaler," and "jobber" have been variously applied by the trade to a group which performs the function of assembling honey in quantity lots for distribution to large bottling firms, supply houses, or other local outlets, or for export or shipment to the eastern markets; but they usually do not bottle honey in small lots. Purchases are usually made direct from the producer, and a considerable volume of honey passes through the hands of these individuals. In most cases other products besides honey are handled. Considerable grading of honey is done by these agencies. Formerly, produce houses handled honey in some volume, but indications are that but little honey passes through this channel at the present time.

Honey is handled by the wholesale grocery companies operating in the metropolitan centers of the state, but there are indications that the volume passing through this channel is steadily declining. Purchases are made from the bottling firms, and at the present time these are confined largely to extracted honey put up in glass especially for the whole-

sale grocery in question with the company's special brand on the label. Honey in metal containers or pails, and particularly comb honey, passes through wholesale grocery channels in only very limited quantities. Comb honey, because of its fragility and tendency to leak and soil, has in the past been particularly unadapted to wholesale handling. While cellophane wrapping has overcome this difficulty in some degree, it has not apparently resulted in the increased handling of comb honey by the wholesale grocers. Wholesale handling of comb honey is also faced with the problems of granulation and slow turnover.

Merchandising of extracted honey by the wholesale grocer is also attended by special problems. The tendency for honey to granulate is a difficulty attendant upon all forms of warehousing, and when this granulation takes place in labeled jars, reliquefying is often accompanied by trouble and expense.

Wholesale grocers in the city of Los Angeles, interviewed during December, 1931, expressed much dissatisfaction with the conditions in the honey trade then existing. Indiscriminate price cutting on the part of producer-bottlers who were selling direct to retailers was reported as making the profitable handling of honey extremely difficult. Lack of standardization in the quality of the honey and in the size of the container was further stressed by the Los Angeles wholesalers as making the profitable turnover of honey on a narrow margin virtually impossible.

The bakery and confectionery supply firms perform much the same function for the bakery and confectionery trade as the wholesale grocery does for the grocery trade. These firms handle honey as a minor line in 60-pound tins.

Organizations of retail grocers for cooperative buying have gained considerable importance in recent years. These organizations follow the same general methods in handling honey as do the wholesalers, and in large measure have duplicated the experience of the wholesale grocers with respect to the commodity. So important is the matter of warehouse granulation of honey that in certain instances these organizations have their purchases shipped direct to their member retailers, and so avoid having warehouse stocks on hand.

The buying office of the chain store makes its purchases from the bottlers, ships the bottled honey to its warehouse, and distributes it as required to the retail store units. Some chains have their own special brand placed on the honey, but they usually handle the brand of the bottling firm from which their purchases are made, without change. Some chains, perhaps the majority, handle comb honey, although there

are notable examples of chain organizations which have never added comb honey to their standard stock-in-trade and do not look upon it as a feasible or normally profitable line of merchandise.

HONEY AS A RETAIL COMMODITY

In one respect the retail store is always a key point for consideration of the marketing process, since it has the commodity on its shelves in the final form, or as the consumer finds it. Results, good or bad, of the production and marketing process can be studied in precisely the form in which they react favorably or otherwise upon consumption. In the case of honey, however, there were further factors which made the study of retailing important. It has been pointed out that the channels of market distribution for this commodity are numerous and somewhat ill-defined. Since it was obviously impossible to contact and study carefully all of the different channels through which honey flows, it was necessary to make a detailed study of the product as the consumer finds it, and then relate this to a more general study of the marketing channels themselves. As noted later (page 27), the retail store was also made a focal point for study of consumer requirements and preferences in honey.

Stores Sampled.—In gathering information relative to the retailing and consumption of honey in California, personal visits were made to 179 retail stores during December, 1931, and January, 1932, and detailed information was obtained and recorded in each. Of the above number, 77 were selected at random from the important shopping districts in the Los Angeles metropolitan area (including Long Beach, Pasadena, Santa Monica, Glendale, and other cities) together with a fairly complete representation of the scattered "neighborhood" groceries and "drive-in" markets. Two of the stores were visited incidental to other work in Fresno and Bakersfield, while the remaining 100 stores were fairly representative of San Francisco, the East Bay cities, and the different centers on the San Francisco Peninsula.

Cooperation from the store managers was forthcoming in an exceedingly large majority of cases, and in but a few instances was the information which was sought refused. Some selection was practiced in favor of stores with at least a small stock of honey, for certain phases of the study demanded that honey be a commodity of which the operator was at least conscious.

After the desired information had been obtained from a particular chain store in any one district of a city, other branches of the same

chain in that district were excluded as not yielding further information of proportionate significance, particularly since a special study of chain retailing of honey was made through the central offices of these organizations. The proportion of independent stores to chain stores shown in the study is therefore somewhat higher than that which actually exists in the cities in which the studies were made.

It is difficult to make precise classification of the stores in the survey but the following tabulation serves as a general indication of the different types visited:

Independent groceries and markets.....	83
Independent groceries and markets, essentially cash and carry.....	26
Chain stores.....	26
Delicatessen and combination grocery and delicatessen.....	15
Independent stores but members of buying chains.....	12
Health food stores.....	7
Miscellaneous (creameries, specialty stores, market stands).....	10
<hr/>	
Total.....	179

Trade Brands.—There is a surprisingly large number of different trade brands of honey for sale in the retail stores of the two metropolitan areas of California. In the 77 stores visited in the Los Angeles area, no less than 60 brands of honey were recorded. This included only honey packed in glass. Honey in metal pails is excluded from consideration because it is not usually given a distinctive brand name but is simply labeled "Pure honey" or in a similar manner. In the San Francisco Bay area 100 stores showed a total of 47 different brands packed in glass. In all the stores included in the study, a grand total of 102 different brands were recorded, as shown by the following tabulation:

In 1 store.....	45
In 2 stores.....	15
In 3 stores.....	13
In 4 stores.....	8
In 5 but less than 10 stores.....	13
In 10 but less than 15 stores.....	3
In 15 but less than 20 stores.....	2
In 20 but less than 25 stores.....	1
In 25 but less than 30 stores.....	0
In 30 but less than 35 stores.....	1
In 35 stores.....	1
<hr/>	
Total number of brands.....	102

There were 7 brands for sale in both the San Francisco and the Los Angeles areas. One brand was found in 35 stores and another in 34

stores. Forty-five brands were found in but 1 store each, these being in considerable part the special brand of the store in which they were found. It is reasonable to believe, however, that there were 50 or more brands competing to a greater or lesser degree for general distribution in the cities studied.

Sizes of Glass Honey Containers.—The containers in which the honey is packed for retail sale, especially glass containers, show a wide variation in type and size. In the 179 stores visited during the study, 48 different sizes of glass containers were recorded. These varied in net-weight capacity from 1 ounce to 10 pounds, with the largest number of cases falling in the smaller sizes, or less than 2 pounds. Glass containers of the following capacities were listed during the study:

1 oz.	14½ oz.	2 lbs. 2 oz.
4 oz.	15 oz.	2 lbs. 4 oz.
4½ oz.	16 oz.	2 lbs. 5 oz.
5 oz.	17 oz.	2 lbs. 8 oz.
5½ oz.	17½ oz.	2 lbs. 9 oz.
6 oz.	18 oz.	2 lbs. 10 oz.
7 oz.	19 oz.	2 lbs. 11 oz.
8 oz.	20 oz.	2 lbs. 12 oz.
8½ oz.	21 oz.	2 lbs. 13 oz.
9 oz.	22 oz.	2 lbs. 14 oz.
10 oz.	23 oz.	2 lbs. 15 oz.
11 oz.	23½ oz.	3 lbs.
11½ oz.	24 oz.	3 lbs. 4 oz.
12 oz.	30 oz.	5 lbs. 14 oz.
13 oz.	2 lbs.	6 lbs.
14 oz.	2 lbs. 1 oz.	10 lbs.

A study of the retailing of honey in Chicago, which was carried on by the New York State College of Agriculture, revealed 20 sizes of glass containers for a total of 294 retail stores. Though contrasted to 48 different sizes for 179 stores in this survey, it was definitely pointed out that retailers in Chicago severely criticized the practice of bottlers and wholesalers in using so many different sizes of containers.⁷

To gain some idea of the sizes of containers most commonly stocked and sold in California, a count was made of the different sizes of each brand in each of the stores visited. Store operators were also asked to report the sizes of containers that were their leading sellers. The results of these investigations are shown in table 3.

⁷ Rasmussen, M. P. The Chicago metropolitan district as a retail honey market 1926. *Farm Econ.* 3:965-968. 1928.

Shape of Glass Containers.—There was also evidence of a lack of uniformity in the shape of glass containers, although apiarists and bottlers are making extensive use of the following general types of jars:

1. A tall, cylindrical jar with a screw or catch top with the mouth of the jar being of the same diameter as the jar itself (No. 1, fig. 1).
2. A tall, cylindrical jar similar in many respects to 1 except that it is contracted at the top to form a distinct shoulder (No. 2, fig. 1).

TABLE 3
EXTENT OF USE OF DIFFERENT SIZES OF CONTAINERS
FOR HONEY IN CALIFORNIA

Size of container	Number of times counted*	Number of times reported as a leading seller
12 oz.....	137	28
5 oz.....	94	19
32 oz. (2 lbs.).....	78	13
21 oz. (1 lb. 5 oz.).....	49	19
6 oz.....	46	9
42 oz. (2 lbs. 10 oz.).....	45	3
20 oz. (1 lb. 4 oz.).....	40	8
16 oz. (1 lb.).....	38	13
5 lbs †.....	65	26
2 lbs. †.....	12	3
10 lbs. †.....	9	2

* To compare the extent of use of different sizes of containers it was necessary that a system of counting be decided upon. The method selected was to count each size once for each brand in each of the stores visited.

† Metal containers added for purposes of comparison.

Source of data: Computations by authors based upon data obtained in survey.

3. A tall jar with gently constricted sides and a somewhat contracted top making a more or less fancy appearance (No. 3, fig. 1). There are several variations of this type of jar.

4. In the smaller sizes, primarily the 12-ounce size, a globular jar, usually of pebbled glass, with a screw top (No. 4, fig. 1).

Types 1, 2, and 3 frequently vary with respect to height, form of patent tops, shape (many-sided rather than cylindrical), type of glass (pebbled or fancy), etc. Besides the foregoing general types listed, numerous special types of glass containers are used. These vary in general character from milk bottles to elaborate examples of glassware manufacture.

In each store count was also kept on each of the different types of containers used under the different brands, and for each floral variety of

honey within the brand. The total numbers of containers as determined by this count are as follows:

Type 1 with screw top.....	365
Type 1 with catch or patent top.....	147
Type 2 with screw top.....	148
Type 2 with patent top.....	54
Type 3.....	69
Type 4.....	33
Miscellaneous (includes all other types of glass containers).....	150
Total.....	966

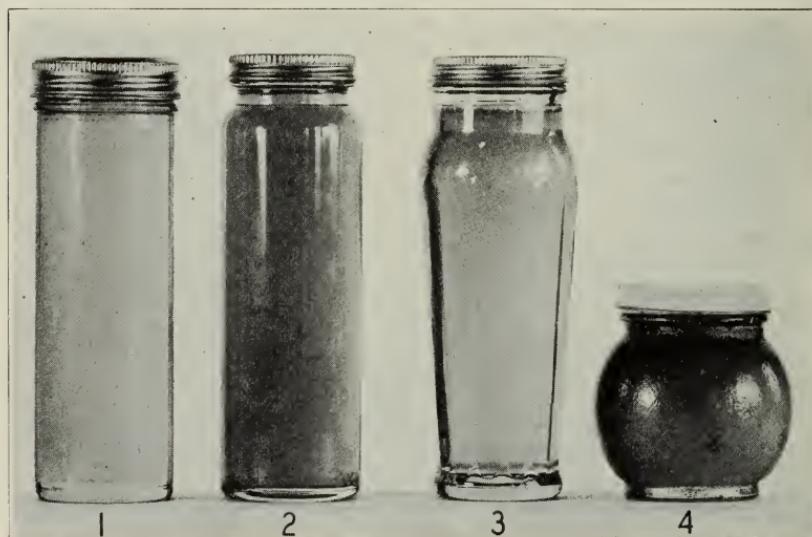


Fig. 1.—Types of honey jars commonly found in retail stores, Los Angeles and San Francisco, 1931-32.

Metal Containers.—All of the stores included in the study sold honey in glass containers, but of this total only 73 stores, or about 41 per cent, stocked honey in metal containers. Of the 77 stores in the Los Angeles area, 38, or about 50 per cent, had honey in metal containers. Of the 100 stores in the San Francisco Bay area, however, only 35, or 35 per cent, handled honey in this way, an indication of a rather significant difference in the popularity, for the time at least, of this type of container in the two districts.

In Los Angeles the metal containers, though representing in each case a greater bulk of honey, were popular with consumers in those sections of the city where individual purchasing power is relatively low. Differences in price per pound between honey sold in glass and in metal

containers will be noted later (page 18). It was repeatedly mentioned by the store operators that the individual who purchased honey put up in metal containers expected a lower-priced product and was prepared to take lower quality. Some store operators expressed the further opinion that he usually got both. The prejudice against honey sold in metal containers and not therefore available for visual inspection by the customer was, in fact, a significant feature of the study. Many people have come, justifiably or otherwise, to associate lower quality with the metal container.

Metal containers are standardized for size and form to a much greater extent than are the glass containers. The familiar cylindrical can or pail with a "plug" or friction top is in almost universal use with the exception of lots in large bulk not ordinarily found in retail stores. The 5-pound tin or pail is also a standard container though, of course, other weights are stocked by many stores.

The relative use made of the different sizes of metal containers is shown by the following figures, which are based on a count of the different sizes in each brand or price group for each store that was selling honey put up in this manner.

WEIGHT OF CONTAINER	NUMBER OF OCCURRENCES
5 lbs.....	65
2 lbs.....	12
10 lbs.....	9
4½ lbs.....	6
3 lbs.....	3
Other sizes.....	14

Five-pound containers were reported 26 times as a leading seller, 2-pound containers 3 times, and 10-pound containers twice (table 3).

Comb Honey.—Comb honey is not distributed nearly so widely as extracted honey. Of the 179 stores included in the study, only 72, or about 40 per cent, had comb honey for sale, although the time of year (December and January) was favorable to the finding of comb honey in stock. Among the independent retailers, as well as the chain and multiple-outlet retail organizations, opinion is divided concerning the advisability of handling this product. Liability of breakage, granulation, tendency to leak and soil on the shelves, "high price," and a slow turnover were all mentioned as difficulties to be overcome. It was also demonstrated throughout the study that the public is by no means completely educated to the table use of honey and comb together, and many retailers do not stock comb honey simply because there is no demand

for it. Where a special demand for this product was reported, it was usually attributed to the known purity of honey in the comb.

Unlike extracted honey, especially that put up in glass jars, comb honey is frequently sold without any brand name and sometimes without any stamp or mark indicating its origin. Most of the comb honey appearing in the retail stores at the present time is cellophane-wrapped. Some producers and distributing firms use a wrap of this sort with a tinted or patterned border covering the irregular cells at the edge of the section. Without unduly obscuring the quality of the comb, this gives the section a very pleasing appearance.

It is required by law that minimum net weight be stamped on the package, and these vary from 8 to 14 ounces. The following tabulation shows how these weights tend to be distributed, the stamped weight of each price group or brand being counted once in each store that was handing comb honey:

NET WEIGHT	NUMBER OF OCCURRENCES
8 oz.....	6
10 oz.....	24
11 oz.....	4
12 oz.....	57
12½ oz.....	5
13 oz.....	1
14 oz.....	2
Over 14 oz.....	1

Sirup as a Competitive Commodity.—Sirup is mentioned elsewhere in this study (page 28) as a commodity with which honey competes to a considerable degree. Note was taken throughout the survey of the retailing of various commercial sirups, and while it is evident that sales of sirups are considerably in excess of those of honey, there are considerably less than one-quarter as many brands stocked in the areas studied. Furthermore, the majority of stores in both areas displayed the same standard brands (several nationally advertised) of a comparatively restricted number.

Relative Importance of Honey as a Retail Commodity.—With certain exceptions, honey cannot be said to occupy an important place as a commodity of retail trade. In the majority of stores visited, honey stocks were found to be decidedly limited in quantity and many storekeepers indicated a slow turnover in this product. Stores that made a specialty or major line of honey were comparatively rare, while questions in reference to newspaper advertising, use of specials, posters, or circulars

in promoting honey were largely answered in the negative even where the store frequently advertised or listed specials on other products.

The most important exceptions to the above were health food and specialty stores, these usually featuring honey regularly as a healthful sweet. A few large groceries and markets also were found to be carrying tastefully arranged honey displays. Small groceries, especially small independent concerns, almost invariably considered honey a very minor commodity indeed.

Honey, where not displayed on a special stand as in some larger stores, is usually grouped on the shelves with jams, jellies, and other preserved-fruit packs. In some stores it is displayed with peanut butter and spreads, while in others it is grouped with sirup for display.

Rasmussen⁸ found that 79 chain grocery organizations in the United States with 29,226 retail stores sold an average of only 82 pounds of extracted honey and 30 pounds of comb honey per store annually. For chains on the Pacific Coast, however, annual sales of extracted honey averaged 480 pounds per store as compared with 46 pounds for the eastern states.

ECONOMIC EFFECTS OF PRESENT METHODS OF MARKETING HONEY

It is now proposed to review in some detail the characteristics of honey as a retail commodity as just outlined to ascertain the economic rewards or penalties which the producer may receive or incur as a result of the present system of marketing.

Quality.—To this point, consideration has been given to all the important characteristics of honey as the consumer finds it in the retail store with the exception of quality and price. Important as it is, definite information on quality is of necessity lacking. The quality of a jar of honey on the shelf of a retail store cannot be satisfactorily determined by inspection, and most store operators either believe they are selling a good-quality product or do not know.

It can be safely said, however, that where a product such as honey is put up by a large number of individuals and is sold under a large number of brands, in many different sizes and shapes of containers and, as later indicated, at many prices, there is almost certain to be a considerable variation in the quality of the product. It is the carefully considered opinion of the authors that such a variation in quality is present in the honey for sale in California cities, and much that is said hereafter

⁸ Rasmussen, M. P. Some facts concerning the production and marketing of honey. New York Agr. Col. (Cornell) Ext. Bul. 221:110. 1932.

with respect to standardization of containers and brands can be, with even more profit, applied to quality.

Price.—Price is not a contributing factor to a bad marketing process, but the nature of the retail price is in part a good measure of the efficiency of the marketing channels. The more widely known a commodity is, the more efficiently it is distributed; and the better it is standardized in every way, the more likely it is to have one definite price or a definite

TABLE 4
AVERAGE PRICE OF HONEY PER POUND FOR DIFFERENT
SIZES OF CONTAINERS, DECEMBER, 1931

Type and size of container	Number of counts*	Average price per pound, in cents
Glass containers:		
5 oz.....	93	32.1
12 oz.....	146	26.8
16 oz (1 lb.).....	52	26.6
21 oz.....	85	25.5
32 oz. (2 lbs).....	96	22.1
42 oz.....	54	20.0
Tin containers:		
2 lbs.....	13	14.6
5 lbs.....	79	13.6

* Count made for each different size in each variety and brand for each store in the survey. Prices of odd lots ranging 50 cents a pound or more are not included.

Source of data: Computations by authors.

series of prices for specific grades or qualities, wherever sold. To this standard the present market channels for honey in California do not measure up very satisfactorily.

As might be expected, the price of honey to the consumer when reduced to a per-pound basis varies according to the size or type of container in which it is sold. Honey in metal containers is much cheaper than honey in glass containers, part of which may be the result of difference in quality, while honey in small glass containers is more costly than honey in larger containers (table 4). Apparently from one-third to one-half of the retail price of honey in the very small sizes can be charged to the cost of the container and to the extra expense involved in filling and handling.

The most significant consideration in the study of the retail prices, however, is to discover whether the large number of marketing units and brands and the lack of standardization of containers and quality contribute to a large number of prices for honey. Table 5 for all types of honey shows a great variation in the price per pound even with the

effects of differences in container size partially removed, but as sage, orange, and blended honey are all grouped together, some variation due to floral variety is to be expected. It should be noted that container size cannot be entirely removed from consideration because the confusion resulting from a large number of different sizes will inevitably reflect in price variation from store to store for the same size of container.

Table 6 shows similar data but with the effect of variation in floral variety of honey removed by grouping the data for each variety sep-

TABLE 5
VARIATION IN RETAIL PRICES OF EXTRACTED HONEY*

Price per pound, in cents	5 oz.	12 oz.	21 oz.	32 oz.	42 oz.	5-lb. tin
	Number of lots found for sale in size indicated					
5-9	...	...	...	...	...	20
10-14	...	1	...	1	2	29
15-19	...	6	25	31	32	15
20-24	3	44	19	35	10	12
25-29	13	54	13	23	10	2
30-34	68	38	21	3	...	...
35-39	1	...	4	2	...	1
40-44	...	2	...	1	...	...
45-49	8	1	3	...	...	...

* This table, which includes all types and varieties of extracted honey, shows the number of lots of honey found for sale in the stores surveyed for the sizes listed (5 oz. to 5 lbs.), and the rate of price per pound at which they were for sale. A lot is counted on the basis of once for each variety or brand in each store in the survey. Those selling at a rate in excess of 50 cents a pound are not included.

Source of data: Computations by authors.

arately. Again a very considerable variation in the price per pound at which honey is sold in the same sizes of containers is to be noted. Sage honey in a 21-ounce jar may sell commonly for as little as from 15 to 19 cents a pound and as high as from 35 to 39 cents a pound. Orange honey shows a similar variation, and blended honey or honey of unspecified floral variety, an even greater price range.

Some of this variation is to be expected even here, for chain stores, cash-and-carry stores, and stores rendering service and credit are grouped together. In the prices of commercial sirups, which were checked in the survey, no such wide variation in price was found to exist. Some brands of sirup sell consistently for more than others, but the price of each brand is very much the same everywhere at any one time, and moreover, the number of brands is exceedingly limited. Further, the price range between the same varieties of commercial sirup, as for example corn sirups, is in general rather narrow from brand to brand and varies but little from store to store. It is easy to see how a

TABLE 6
VARIATION IN RETAIL PRICES OF EXTRACTED HONEY GROUPED ACCORDING TO FLORAL VARIETY OF HONEY*

Price per pound in cents	Blend or variety unspecified			Sage			Orange											
	5 oz.	12 oz.	21 oz.	32 oz.	42 oz.	5-lb. tin	5 oz.	12 oz.	21 oz.	32 oz.	42 oz.	5-lb. tin	5 oz.	12 oz.	21 oz.	32 oz.	42 oz.	5-lb. tin
5-9	20
10-14	...	1	...	1	2	20	2
15-19	...	6	3	19	5	3	...	2	3	2	4	...	...	2	5	6	4
20-24	3	25	1	20	1	1	...	1	2	5	2	...	...	10	3	11	3
25-29	13	32	1	3	1	2	...	...	6	1	1	...	...	21	3	5	2
30-34	54	2	1	...	1	...	1	13	2	1	...	...	4	17	5	...	...
35-39	1	...	1	...	1	...	...	3	...	...	...	...	...	1	2	...	...
40-44	...	1	...	...	1	...	...	...	1	...	...	...	1	...	1	...	...
45-49	3	1	...	1	...	1	...	...	1	...	...	1	...	1	...	...	...

* This table is similar to the one on page 19 except that it is separated into the three leading types of honey, namely, blends, sage, and orange, while other floral varieties are not included. (See footnote to table 5.).

Source of data: Computations by authors.

large number of container sizes contributes to a multiplicity of prices. The retailer cannot be sure whether he is overselling or underselling his neighbor because his sizes are different and the matter is further complicated by the large number of brands. The quotations of every salesman or wholesaler are in terms of different sizes and for different brands. Even with careful calculation the retailer cannot be sure that he is buying "at the bottom." The result is a high degree of confusion and many different prices.

The effect that this confusion of container sizes, brands, and price has on the volume of retail sales of honey is also clear. The lack of standardization of container sizes was repeatedly mentioned by the retailers as working against the successful handling of honey, for it was said that even the regular purchasers found it difficult to carry in mind definite ideas of size and price. Then there is the further fact that there are a large number of brands, few of which enjoy sufficiently wide recognition so that the consumer becomes familiar with them and learns to depend on that brand for standard quality. The situation is not greatly different from that which would prevail if eggs were sold commonly in sealed cartons holding from 2 eggs to 2 dozen each, with the number of eggs in the carton stamped in very small letters on the bottom, and with few brands of eggs sufficiently well known for the customer to depend upon them for quality. The careful purchaser would then have to divide the price by the number of eggs in the carton, and multiply by 12 in order to ascertain, on a comparable basis, the price per dozen.

This picture is not overdrawn and is very much like the one which exists in the honey industry at the present time. It is a difficult matter for the consumer to purchase honey and be sure that the price is a fair one and that the quality will meet requirements. The prospect for increased or even sustained consumption on such a basis is not very hopeful.

Price Cutting.—In the earlier discussion of the wholesale grocer and the honey trade, price cutting by the producer-bottlers and bottling firms was mentioned. The present organization of the honey industry offers a fertile field for this activity for it is rarely that petty price competition does not characterize a marketing system composed of a large number of small units. How widespread the practice has become cannot of course be estimated, but it received considerable mention throughout the study of the various market channels.

The effect of such a situation, besides the obvious one of depressing prices, is to bring about a condition of uncertainty and extreme caution throughout the trade. Wholesale grocers, for example, will keep their

honey stocks very low and will perhaps, as is actually the case at the present time, even consider the advisability of not handling honey at all, if they feel that another producer-bottler or bottling firm is likely to quote their retailer customers a lower price direct than that at which they purchased their own stocks. Such a condition reacts upon the producers in the form of slow and uncertain sales at any price as well as the depressed price caused by the price-cutting process.

Responsibility for Quality.—Another aspect of the effects of present methods employed in the honey trade is to be found in a consideration of changes and adjustments that have been introduced into the system of food distribution by the modern chain-store organization.

In the latter part of 1931, 4 important chain-store companies were visited representing the central organizations of 376 retail stores in California, principally in the southern part of the state. Comprehensive interviews concerning the organization's methods and experience in handling honey were obtained from the central purchasing offices. Each of these chains was buying honey from local bottling firms and selling it under the brand name of the individual or firm from which it was purchased. One chain used its own brand name on a part of the honey handled. Each organization stressed to a greater or lesser degree the responsibility of the bottling firm to supply them with good honey or to suffer the consequences of declining volume of sales and the substitution of other brands of honey or other commodities. This reflects a tendency which has been noticed as an important feature of the development of chain distribution—the tendency in certain instances to place the responsibility for quality on the brand and hence shift the responsibility for maintenance of quality back in the direction of the producer. Where the chain uses its own brand extensively we find an exception to this tendency, but both the retail study and the interviews with the head offices of the chains show that this is not an extensive practice in the case of honey.

When the wholesale grocery company, and to a lesser extent the retail store, places its own brand on the honey which it sells, it immediately becomes concerned that the product so branded be in keeping with the reputation which the firm had established for quality. This point was well brought out by interviews with wholesale grocery companies during the course of this study. The newer chain organization, on the other hand, with its more mechanical type of service, allows the customer to select such brands of goods from its shelves as meet the pocketbook and taste of that customer. With most commodities this has been relatively simple, for well-known brands or government grades have enabled the

customer to fill his or her particular needs in a satisfactory way. A certain group of commodities lacking in widely known brands or official grades have perhaps not achieved adjustment to this new order so easily and honey would appear to be a member of this group.

This situation is perhaps not yet particularly serious. The fact, however, that there is no large organization or agency in the honey business to take the responsibility for quality, or in the position to have widely known, dependable brands, points to difficulties in the future. It has been seen that the bottler and the producer in many cases are one, and also that their record for efficiency and standardization up to this time has not been particularly good. Furthermore, it has been shown that modern distribution in the case of honey is placing the responsibility for standardization and quality on these individuals and firms. Unless this responsibility is recognized, sales of honey, as a whole, may be expected to suffer. This is a matter that deserves careful thought in any program for bettering conditions in the California market for honey.

The Problem of Trade Promotion.—The honey industry is more or less unusual in its lack of active trade promotion. It has been seen that little pressure is put on honey sales in the majority of retail stores—pressure which in the case of most commodities is the result of assistance and encouragement from agencies back of the retailer. It is also well known that honey does not receive any widespread advertising of a general sort.

In the case of many food commodities there is a keen competition for the attention and appetite of the consumer. Honey is not a staple but an auxiliary article of diet in most cases, and hence there may be difficulty in maintaining its consumption as compared with other foods or in achieving a much expanded market without aggressive promotional methods. It is conceded, however, that this will need to await or be combined with a substantial improvement in the method of marketing honey.

MEASURES FOR IMPROVING THE MARKETING OF HONEY

Some serious weaknesses in the present system of marketing honey in California have been set forth. The situation, however, is not hopeless unless it is conceived that such difficulties must be permitted to correct themselves. Concerted action on the part of producers and others who are interested in the profitableness of the honey industry might be expected to rectify some of the most serious evils.

Two lines of action present themselves for the accomplishment of this improvement. In the first place, there are certain measures which are

feasible under the present general system of marketing, that is, without any organization of producers and others for marketing of the crop. In the second place, there are certain lines of action which require for their prosecution the organization of producers for the performance of marketing functions.

Adoption of Grades.—In the first group of possible improvements—those deemed feasible with the existing marketing set-up—the leading requirement is the establishment and putting into general use of definite and rigidly adhered to grades as a basis for the sale of honey. There is nothing new in this proposal and the authors are quite appreciative of the difficulties involved. California honey is derived from several different floral sources and honey from any one floral source may vary in flavor, cleanliness, and other quality factors according to conditions and methods of production. Natural blending of honey from different sources is a further complicating factor.

Perhaps the greatest difficulty in the administration of the grades lies in the numerous small sources of supply and small marketing units. On the other hand, this very fact bespeaks the need for such grades if the consumers are to obtain the kind of honey that meets their tastes and requirements. The further fact that few of the trade brands of honey are widely recognized for their quality makes it necessary that the consumer be given grades or standards as a basis for determining quality. A system of grades appears to furnish an answer with the present system of marketing.⁹

Sale of California honey on grade might well be expected to facilitate the wholesale handling of honey and reduce the need for sampling and inspection on the part of the buyer. It would certainly throw price quotations into clearer relief once a comparable basis for such quotations was established, and it might have some tendency to lessen price cutting throughout the trade.

The selection of grades for California honey will require careful study, and their general establishment will require a thoroughgoing program of education or legislation or both. Other things being equal, they will pay dividends in the form of higher prices to producers than would prevail in their absence.

Standardization of Containers.—Similar action is needed with respect to the containers for retail sale of honey. In many respects this

⁹ The United States Department of Agriculture has such a system of grades which it recommends for use as a basis for selling honey. See: United States Department of Agriculture. United States grades, color standards, and packing requirements for honey. U. S. Dept. Agr. Cir. 24:1-32. 1927. Revised 1933.

type of standardization offers fewer difficulties than that of establishing grades, and its importance can scarcely be overstressed. A fraction of the present number of sizes and shapes of containers would suffice for the retailing of honey and would eliminate the confusion which now exists. Education or legislation, or both, again present themselves as the means of accomplishment. Concerted action by those whose livelihood depends in part upon an unhampered flow of honey in commercial channels is again required.

In the establishment of standard containers a conservative approach to the problem is probably desirable. Such standardization will involve the balancing of the best possible size distribution and the most desirable shapes against the amount of resistance which will be encountered in making the change to these sizes and shapes. In other words, the objective is to standardize upon those different sizes of containers and those shapes which will be as satisfactory as possible and at the same time keep the number of people at a minimum who will have to revise their established practices with respect to containers.

The standardization of container sizes might profitably be along the lines indicated in table 3 which gives the sizes most used by producer-bottlers and bottling firms in California at the present time. The elimination of one member of nearly duplicating pairs (e.g., eliminating either the 20-oz. or the 21-oz. size) would of course be essential. The same principle holds for shapes of containers. Thus the disadvantages inherent in the tall cylindrical jar (No. 1, fig. 1) as a container for honey may be overbalanced by the fact that this general type is now most widely used and could be made standard with the minimum resistance.

Certain bottling firms and producer-bottlers who are putting up an exceptionally high-quality product probably derive some benefit from placing it in a distinctive container. Some resistance to standardization might be expected and perhaps justified in such cases. The nonconurrence of a few such individuals and firms might not prove a serious handicap if standardization were undertaken by voluntary means. It would certainly be necessary, however, that the number so doing be kept at a minimum. The interests of the industry as a whole would appear to be as definitely in the direction of standard containers as has been the case with producers of strawberries and other small fruits and numerous other commodities.

Improved Marketing Practices.—Finally, the present system of marketing honey could be improved by continued emphasis upon what are usually considered to be good marketing practices. The safeguarding of the quality of the product and its delivery in good condition in good

clean containers, the segregation of honey from different floral sources where such is preferred by the buyers, the refusal to spoil the common market by delivery of honey of a quality other than that expected by the buyer, and careful appreciation of the fact that deliveries to consumers direct or to retail stores cost more money than wholesale deliveries, and that prices should be quoted accordingly are all axioms of good marketing. Unlike the grading of honey and the standardization of containers, they are not points upon which tangible action can be taken, but they are phases upon which education is never complete.

Some of the problems involved in the marketing of California honey cannot be satisfactorily solved under the present general marketing system. Price cutting among the large number of small units, each in competition with the other, cannot be satisfactorily met. If the demand for honey is to be increased by advertising and trade-promotional methods, some additional measures will need to be employed. Under present conditions, the establishment and administration of honey grades promises to be a difficult problem. New developments, such as the chain store, call for adjustments in the marketing practices of other industries. It may be difficult for an industry lacking in organization to achieve these adjustments.

Producer Organization.—In light of these limitations, a second method for improving the marketing of California honey is set forth. This comprehends the organization of California producers for the sale of their product. The authors recognize fully the difficulties involved in this procedure and the nature of the past experiences of California honey producers. The fact remains that it is also the experience of the producers of a majority of California commodities that thoroughgoing market improvement can be brought about in no other way.

It is believed that the problem of grades and standards could be solved by a well-organized, well-managed cooperative with ample control over the production of the state. It is certain that checking of petty price cutting, stimulation of demand, expansion of California markets, and adjustment to the rapidly changing conditions of the world in which we live, can be accomplished in no other way.

It is not the purpose of this bulletin to specifically recommend the above procedure. The facts as stated point to the need for improvement, and possible methods of accomplishment and the degree to which they might be expected to prove effective have been indicated. It is for the producers and others interested in the honey business to decide upon the course of action.

CHARACTERISTICS OF CONSUMER DEMAND FOR HONEY

In connection with the study of retail sales of honey, attention was given to the nature of consumers' preferences and demands, and store operators were carefully questioned in this connection. Information on consumption is usually difficult to obtain, but many store operators, whose business it is, in part, to understand the desires of their customers and to know what they have consciously or unconsciously in mind when choosing between different goods and making purchases, proved a valuable source of information on this subject.

Type of Honey Preferred.—Store operators were asked a series of questions in reference to the type of product their customers looked for in purchasing honey particularly with reference to the color, consistency, and floral variety. Although naturally there was some variation in the answers, the following general summary can be made:

1. Color is the most important criterion of the consumer in judging the honey purchased. A light color is apparently in fixed association with a desirable, mild flavor.

2. Granulated honey or honey in any stage of granulation is subject to rather general adverse discrimination. To some extent, store operators share in the disapproval of this form. Many people object to granulated honey because they apparently believe it to be either impure and unsatisfactory for human consumption, or less palatable. On the other hand, store operators object because they find difficulty in restoring granulated honey in labeled containers to its original consistency. Some bottlers, who are supplying retailers direct, regularly visit the stores handling their product to replace cloudy or partly granulated honey.

3. Floral variety or source of honey is of only medium importance. Good-quality blended honey selling under a reliable brand might be expected to compete favorably with honey of similar quality but of a specific variety. However, purchasers are not generally educated to the distinctive flavors of different floral varieties of honey. Of the 179 store operators interviewed, 66 stated that they had not noticed consumer request or preference in the matter of honey variety, 27 were not inclined to make a specific report on this question, and the remainder indicated consumer preference for one or more varieties. Orange honey was definitely first in this notation, sage second, and "clover" third. Isolated mention, only, was made of specified preference for star thistle or alfalfa honey. Where honey is purchased for medicinal purposes and especially in foreign or poorer quarters, little preference is shown for a specific variety or even color.

Seasonal Variation in Demand.—Although honey is stocked throughout the year, 98 of the stores reported the winter months as being the season of best sale, as against 7 that reported summer and 31 that reported the demand to be steady throughout the year. Twenty-six were not able to state definitely an opinion on the matter and remaining operators suggested fall, Christmas, and holiday times.

Winter sales were accounted for by the tendency of people at this time to eat more substantial foods, and to use honey with hot cakes and waffles, and to use it for medicinal purposes, particularly for colds. It is probable that in localities with more pronounced seasonal changes, the tendency to eat more honey in winter is relatively greater than in California. In a survey of the demand for honey in Great Britain¹⁰ it was stated that "many who made special displays of honey only did so during the cold weather, and some gave up stocking honey during the summer months."

Relation of Demand to Class of Consumer.—No good evidence was brought out to support the statement sometimes made that residents of California, other than native white Americans, made extensive use of honey. Negro, Mexican, Slav, Italian, and Oriental sections were included in the survey, and the indication was towards a lower rather than a higher per-capita consumption in such sections in keeping with a lower purchasing power, or, in the case of Orientals, a low consumption of sweets in general.

Foods Competing with Honey.—Store operators were asked about other food products coming into most direct competition with honey. Again opinions varied, but the following sums up the situation fairly definitely :

1. For medicinal purposes honey does not come into direct competition with any other commodity. Honey sold for this purpose, usually in small amounts, is an individual commodity for which there is, in the minds of people desiring it, no substitute.
2. A certain number of consumers who are fond of honey use it regularly more or less as a staple and do not consider other commodities when purchasing honey.
3. For use as a spread, or as a breakfast sweet, honey meets a wide variety of products such as jams, jellies, and peanut butter.
4. Most mentioned as competing commodities were maple sirup, commercial sirup, and, to a small extent, molasses.

¹⁰ [Great Britain] Empire Marketing Board. The demand for honey. Empire Marketing Board 50:26. 1932.

5. Finally, especially in wealthier sections of cities, honey comes into competition with sugar as a sweetening agent for dietary reasons. Increased use of honey in preference to sugar as a health or weight-controlling measure was frequently reported in stores catering to wealthy trade.

OUTLETS FOR HONEY IN THE MANUFACTURE OF OTHER FOOD PRODUCTS

Baking Industry as a Honey Outlet.—The manufacture of bakery products offers an outlet for honey of some importance. The darker varieties of honey have long found their way into such products as cakes, cookies, and biscuits, although probably to a greater extent in certain European countries than in the United States.

Honey has been tried in small quantities in the manufacture of whole-wheat bread where its coloring effect is not a serious disadvantage. Used in such manner, honey is said to impart a rather desirable moisture-holding quality to the bread, but any distinctive honey flavor is lost in the baking process. Furthermore, bread requires at best only a small quantity of sweetening agent, and honey has some rather serious technical disadvantages which make any considerable use of it for this purpose exceedingly unlikely.

It is in cakes, cookies, graham crackers, and fancy baking that honey finds its most important bakery use. The moisture-holding quality which honey gives to the finished product is in many cases highly desirable, and in certain products the honey flavor is retained through the baking process. Moreover, all such products require relatively much larger quantities of sweetening agent than does bread.

The experience of several baking concerns furnishing information in this connection indicated that present and potential outlets for honey in the baking industry were largely for fancy or specialty products. Most of these companies were using honey in certain fancy baked goods. Technical research which has been done in this field tends to substantiate further the contention that use of honey in bread-making does not represent more than a remote possibility, while there are some fair possibilities for honey use in other types of baking.

Invert-sugar sirups, manufactured from cane sugar and closely associated with the latter in price, compete closely with honey for bakery use. Invert-sugar sirups impart to finished bakery products qualities very similar to those given by honey and are said to be very actively advertised to the bakery trade at the present time. Should the price of darker varieties of honey, "baker's honey," become appreciably above

that of sugar (2 cents or more above) some additional displacement of honey by invert-sugar sirup would be expected. Raisin sirup, glucose, cane sugar, corn sirup, molasses, and malt sirups also compete with honey as sweetening agents for baking.

Christmas has long been a season for special promotion of honey-sweetened bakery products and apparently the use of honey for baking is increased at this time of the year.

It is more than probable that the general advertising of honey-sweetened bakery products, stressing special flavor and health qualities, and appealing to people who must exercise caution in consumption of ordinary sugar, would materially broaden the outlet for honey in the bakery industry.

Candy Manufacture as an Outlet.—Some honey is used in the manufacture of candy and candy confections, but this outlet is not at present of major importance in the California areas studied. Honey is employed in the manufacture of certain candies and candy bars to give a special flavor or structure to the finished product, and there are some specialty products on the market with a center or filler of uncooked honey. Such use has reached considerable proportions in some sections of the country and certain eastern candy-bar firms in particular are reported as being large users of honey. The usual process of candy manufacture, however, tends to destroy any distinctive honey flavor, and some of the cheaper varieties of honey tend to darken the "mix"—an undesirable feature. The necessity of "fortifying," or combining, honey with cane sugar also restricts its use in candy manufacture.

Honey for Other Purposes.—The use of honey for other purposes is slight. In ice-cream manufacture and in soda-fountain preparations it sometimes receives mention. Honey has been successfully tried in the manufacture of ice cream but its widespread adoption as a sweetening agent or as a flavor will involve some rather important changes in the general technique of making ice cream. Further development would appear to depend also on active sponsoring of honey by some person or group actively interested in the honey business. The process of making ice cream does not destroy the special honey flavors and qualities as is the case in baking or candy manufacture where cooking is essential.

A small amount of honey is also used in pharmaceutical preparations and prescriptions, probably as an outgrowth of the medicinal properties commonly ascribed to honey. Some importance has been attributed to this outlet in England, but it is of minor importance in this country. Manufacturers of chocolate sirups also use small quantities of honey.

ACKNOWLEDGMENTS

This study has been made with the active cooperation of nearly 200 retail store operators in the Los Angeles and San Francisco Bay areas, who furnished information concerning their handling of honey. Similar assistance was liberally rendered by the purchasing departments of chain stores and wholesale grocers, by restaurant chains, and bakeries, bakery supply firms, confectioners, and by representatives of the various groups specializing in the handling of honey between the producer and the retailer or consumer. A large number of producers furnished information concerning the disposal of their honey.

The Los Angeles Chamber of Commerce and the chambers of commerce in the San Francisco Bay area furnished the authors with many valuable contacts while the study was in progress.

E. L. Sechrist and G. H. Vansell, Associate Apiculturists in the Pacific Coast Bee Culture Field Laboratory of the United States Department of Agriculture, provided much helpful advice and constructive criticism.

For a painstaking review of the manuscript and innumerable helpful comments, the authors are indebted to Dr. J. M. Tinley of the Giannini Foundation, University of California.

W. H. Shipley, graduate student in Agricultural Economics 1931-32, rendered valuable assistance at every step in planning and carrying out the survey of retail stores.

